REMARKS

Claims 1-26 and 30-35 are pending. Applicants respectfully request reconsideration and reexamination of the pending claims.

Claim 1 has been amended to recite a first-side disk including "a substrate . . . a first metal/alloy layer overlying said the first principal surface of said the substrate . . . a first transparent layer overlying said the first metal/alloy layer, the first transparent layer having a thickness of greater than 15 microns a second metal/alloy layer overlying the first transparent layer; and a first optical coupling layer overlying the second metal/alloy layer, wherein the thickness of the first optical coupling layer is substantially less than the thickness of the first transparent layer, the first-side optical disk having an absence of additional layers overlaying the first optical coating such that the first optical coupling layer functions to optically couple the second metal/alloy later to the first-side optical disk's operating environment." Support for the thickness limitation to the first transparent layer is given by, for example, page 8, lines 19 through 29, wherein the Applicants discuss the advantage of making the first transparent layer greater than 15 microns in thickness, which is to allow the focus scheme of a disk drive to distinguish between the two metal/alloy layers. However, this relative thickness stands in sharp contrast to the claimed thickness of the first optical coupling layer. Support for the thickness limitation to the first optical coupling is given by, for example, page 7, line 25 through page 8, line 2 and also by Applicants' Figure 4 which shows an optical coupling layer [element 38] having a thickness substantially less than that of the transparent layer [element 32]. For example, as stated by the Applicants on page 8, line 2, this thickness may be "about 80 nanometer."

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Consider the advantages and benefits provided by the recited combination of elements in claim 1 as compared to the prior art depicted in Applicants Figures 1 and 2. Conventionally, information-containing layers are typically covered by a relatively thick layer

(typically many microns in thickness) of protective coating such as polycarbonate. As is well known in the art, the relative thickness of these protective coatings serves to defocus dust particles – in other words, dust particles lying on the surface of the thick protective coatings are out-of-focus with respect to laser beams focused on the information-containing layers. However, as noted by the Applicants on, for example, page 2, line 28 through page 3, line 5, this relative thickness introduces optical aberrations and wavefront distortions into laser beams that must traverse through many microns of protective coating.

The inventive combination recited in claim 1 avoids such aberrations and distortions by limiting the thickness of the optical coupling layer to be "substantially less than the thickness of the first transparent layer." Note that in the prior art depicted in Figures 1 and 2, the protective coatings are substantially thicker than the transparent layer – for example, compare element 11 to element 12 in Figure 1. Because of the relative thickness of the protective layer, it may be considered an additional substrate and such disks may be denoted as multiple-substrate disks in contrast to Applicants claimed first-side disk.

The following prior art cited by the Examiner teaches the use of multiple-substrate optical disks. For example, consider the Takeda reference, USP 6,210,609. As discussed with respect to Figures 3 and 12 in Col. 4, lines 40 through 50 protective coatings 102 are formed by first coating the disk with liquid light-curing resin that is sandwiched by glass plates, then the disk is spun at high speed and subjected to UV light to cure the resin. As is known in the art, such a process produces relatively thick coatings that function to defocus dust particles lying on the surface of the protective coatings with respect to the underlying information-containing layers. Accordingly, Figures 3 and 12 indicate that the thickness of these protective layers is substantially greater than the thickness of the transparent layers (elements 42 and 41]. Thus, although they are denoted as "protective layers" these layers function as substrates, providing additional rigidity and support to the disk.

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The Ueno reference (USP 6,228,457) teaches no more than the Takeda reference. Indeed, rather than denote these layers as "protective coatings," Ueno denotes them as substrates [elements 1 and 2 in Figure 1] because of their relative thickness (many microns) with respect to the thickness of the "transparent adhesive" layer [element 5].

Similarly, the Kobayashi reference [USP 5,703,868] teaches multiple, relatively thick dye-containing substrates [elements 16 and 12 in Figure 2]. Two information layers [elements 6 and 2] lay underneath, respectively, the two substrates 16 and 12. Multiple protective layers [elements 8 and 4] and an adhesive layer 9 separate the information layers. As such, Kobayashi teaches a dual-side optical disk having only a single "metal/alloy" layer per side. More fundamentally, there is no teaching or suggestion for the "transparent layer" and "optical coupling layer" elements recited in claim 1. Instead, Kobayashi teaches the "multiple substrate" type approach to optical disks that Applicants already noted in their prior art Figures 1 and 2.

The Fujimori reference [USP 6,312,547] also teaches a "multiple substrate" approach. As seen in Figure 3 and discussed, for example, in Col. 4, lines 40 through 56, Fujimori discloses an optical disk 60 comprising two optical disks 12 and 11 joined by an adhesive layer 8. Each optical disk 12 and 11 is formed using a substrate 3 – thus, the laser beam passes through the substrate to read the information layers corresponding to each disk 12 and 11. As such, Fujimori teaches away from the "optical coupling layer" limitation recited in claim 1.

The Saito reference [USP 6,221,454] is also a "multiple substrate" disclosure. As seen in Figure 1, optical disk 10 uses two substrates 12 and 14 overlaying information recording layers 16 and 18, respectively. Accordingly, Saito teaches away from the "optical coupling layer" limitation recited in claim 1.

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The Nishiuchi reference [USP 5,764,619] adds nothing further. Substrates 1 and 3 overlay information layers 2 and 4. Accordingly, Nishiuchi teaches away from the "optical coupling layer" limitation recited in claim 1.

The Holster reference [USP 4,450,553], as seen in Figure 1 and discussed in Col. 9, line 52 through Col. 10, line 16, discloses an optical disk having a 1 mm thick substrate 1. On opposing surfaces of the substrate are formed reflection layers 5. As seen in Figure 1, the disk is configured such that the reflection layers are read by a laser beam that passes through the substrate. As such, it is similar to a "multiple substrate" approach in that dust particles on the surface of one reflection layer will be out-of-focus with respect to a laser beam passing through the substrate that is focused on the opposing reflection layer. This approach is quite different from the "one-side" configuration recited in claim 1 and teaches away from the "optical coupling layer" limitation recited therein.

In view of the above discussion, Applicant respectfully submits that claim 1 is patentable over these references used individually or in combination. Because claims 2 through 11, 18 through 26, and 30 through 34 depend either directly or indirectly on these references, they are patentable for at least the same reasons. In view of the Applicants' amendments to claim 1, the relevance of the other references cited by the Examiner (Nakahara, Sugita, Pan, and Allebest) is mooted because they provide nothing further to correct the deficiencies in the previously-discussed references.

Claim 12 has been amended in an analogous fashion to claim 1. No new matter has been added. Accordingly, it is patentable over the Holster, Fujimori, Ueno, Takeda, Kobayashi, Nishiuchi, and Saito references for at least the same reasons as discussed with respect to Claim 1. Because claims 13 through 17 depend either directly or indirectly on claim 12, they are patentable for at least the same reasons. In view of the Applicants' amendments to claim 12, the relevance of the other references cited by the Examiner

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(Nakahara, Sugita, Pan, and Allebest) is mooted because they provide nothing further to correct the deficiencies in the previously-discussed references.

Claim 35 has been amended in accordance with the amendments to claim 1. Accordingly, it is patentable over the Holster, Fujimori, Ueno, Takeda, Kobayashi, Nishiuchi, and Saito references because they provide no suggestion to provide such an apparatus, let alone suggest a method of using such an apparatus.

Because claims 27 -29 and 36-57 are cancelled, their rejections are mooted.

In addition, the specification has been amended to address a typographical error.

CONCLUSION

For the above reasons, pending Claims 1-26 and 30-35 are in condition for allowance and allowance of the application is hereby solicited. If the Examiner has any questions or concerns, a telephone call to the undersigned at (949) 752-7040 is welcomed and encouraged.

I hereby certify that this correspondence is facsimile transmitted to the Commissioner for Patents, Washington, D.C. 20231, at 703-872-9310, on April 7, 2003.

Jonathan Hallman — April 7, 2003 Date of Signature

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